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Elements of Plane and Spherical Trigonometry (With Tables). By DAVID A. ROTHROCK. New York: The Macmillan Company. Pp. 158. \$1.40 net.

Practical Business Hints. By MARY H. WOODBURY. Salem: Newcomb and Gauss. Pp. 116.

The author aims in this book to teach by a series of lessons that practical business knowledge that every one should know. It contains a review of the fundamental operations with integers and fractions and treats of percentage, interest, discount, commission, taxes, accounts, banks and banking, business letters, notes, etc.

Applications of the Calculus to Mechanics. By E. R. HEDRICK and O. D. KELLOGG. Boston: Ginn and Company. Pp. 116.

This book is an endeavor to fill a need felt at some institutions of getting students better acquainted with the methods of applying the calculus to problems in mechanics. It aims at teaching them how to give the problem an analytic formulation and how to interpret the analytic results. It seems very well suited to these purposes and the student that uses it will know more calculus as well as more mechanics.

An Elementary Course in Graphic Mathematics. By MATILDA AUERBACH. Boston: Ally and Bacon. Pp. 54.

First Course in Algebra. By HERBERT E. HAWKES. Boston: Ginn and Company. Pp. vii + 334. \$1.00.

The "First Course in Algebra" is designed for the first year's work. The topics considered have been strictly limited to those which belong primarily to study in the first year. Many helpful suggestions, the fruit of the widespread discussion of mathematical teaching which has marked the progress of the past ten years, are embodied in the book.

Difficult exercises have been avoided. Those given are new, varied, graded with extreme care, and amply sufficient to develop the essentials of elementary technic. The principles, so far as possible, are developed from the student's knowledge of arithmetic. An abundance of typical solutions are given, and rules based on them have been carefully stated in full. Wherever practicable, suitable methods of checking are illustrated.

Unusual emphasis is placed on problem work, especially in developing the student's ability to express a problem in terms of algebraic symbols. Variety is secured and interest maintained by frequent changes from technical work to problem work.

Close and consistent correlation with geometry is secured in two ways: through the problems based on elementary geometrical theorems, and by treating fully those radical forms which arise in geometry.

Graphs are used freely and are always incorporated in the work of the topic they are intended to illustrate.

Historical and biographical notes add a touch of human interest to the subject, and several portraits of famous mathematicians are included at points in the text where their work has contributed to the development of the subject.

Plane Geometry with Problems and Applications. By H. E. SLAUGHT, Associate Professor of Mathematics in the University of Chicago, and N. J. LENNES, Instructor in Mathematics in Columbia University. Published by Allyn and Bacon.

This book is sufficiently different from the numerous editions of "geometry" to deserve special attention. To quote from the preface: "The subject has been enriched by including many applications of special interest to the pupils. . . ." Free use is made of certain sources of problems which may be easily comprehend without extended explanations—such problems pertain to decoration, ornamental designs and architectural forms." On closer investigation it appears that these applications are intended merely to furnish a *concrete setting* for the usually too abstract geometrical theorems. There is no claim made that they are practical in the sense that the study of bookkeeping is practical for one who intends to keep books. The aim is to present the subject "so that the pupils may learn to know the essential facts of elementary geometry as properties of the space in which they live and not merely as statements in a book."

The large number of finely executed cuts give the book an unusual and particularly attractive appearance.

Throughout the book there is a large number of simple exercises, many of which can be answered at sight. Algebraic solutions are used freely, and manipulation of algebraic expressions such as radicals is required in an unusually large and varied number of problems. Many are exceedingly simple, such as; Ex. 30, p. 150, while others are quite difficult such as Ex. 18, p. 266.

While the logical rigor of the older texts has been fully maintained and in some cases improved (see the treatment of incommensurables), the whole subject has been recast with the avowed purpose of adapting to the needs and powers of the pupil. It is interesting to note that while this book and the new "Syllabus in Geometry for the State of New York" were unquestionably prepared entirely independently of one another, the book carries out the letter and spirit of that syllabus as fully as if it were made with special reference to it. There seem therefore to be some reasons for believing that recent discussions on the pedagogy and subject matters of geometry have brought into clearer light certain fundamental principles which are being generally accepted.

This book is bound to exert a wide influence on the teaching of geometry and to other texts which will appear in the future.

The "Solid Geometry" by the same authors, which is expected soon, will receive a cordial welcome from teachers who have already looked over the "Plane Geometry."